

REMARKS/ARGUMENTS

Claims 1, 2, 4-6, and 11-25 are pending. In the office action mailed November 10, 2003 (paper no. 7), claims 18-23 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,414,707 granted to Johnston et al. (hereinafter "*Johnston*"). Claims 1, 2, 4-6, 11-17, 24, and 25 were rejected under 35 U.S.C. 103(a) as being anticipated by U.S. Patent No. 6,434,165 granted to Sherer et al. (hereinafter "*Scherer*") in view of *Johnston*. Applicants note with appreciation that the improper finality of these rejections was withdrawn in an Interview Summary mailed February 3, 2003 (Paper No. 8). These rejections are respectfully traversed.

10 Rejections under 35 U.S.C. 102(b)

Claims 18-23 stand rejected under 35 U.S.C. 102(b) as being anticipated by *Johnston*. In particular, it is alleged that *Johnston* discloses a programmable pattern matching engine at Machine (M-20), figure 3, and col. 5, lines 29-66. This rejection is respectfully traversed.

Johnston fails to provide a basis for the rejection of claims 18-23, because it fails to disclose each element of the claimed invention. Claim 18 includes a "system for receiving data comprising: a programmable pattern matching engine receiving a pattern and a data stream and generating an index entry if the pattern is present in the data stream; a microprocessor reading the index entry and determining whether to continue receipt of the data stream; and a CRC engine performing CRC processing of a received data frame if the microprocessor determines to continue receipt of the data stream." Although the Examiner alleges that machine M-20 is the claimed programmable pattern matching engine, that the microinstruction unit 28 is the claimed microprocessor, and that CRC machine 38 is the claimed CRC engine, this construction is

contradicted by the Examiner's characterization of the CRC checker 423 of *Sherer* as allegedly being the pattern matching engine of claims 1, 2, 4-6, 11-17, 24, and 25. In addition, since
 25 microinstruction unit 28 and CRC machine 38 are each sub-components of machine M-20, the Examiner has failed to identify each separate element of the invention of claim 18. To the extent that machine M-20 allegedly "generates an index entry if the pattern is present in the data stream," this function could not be found in the section of *Johnston* cited by the Examiner. The only places in which the word "index" is used are at col. 12, lines 3-5, and col. 15, line 56
 30 through col. 16, line 20. The process described at those sections is a simple matching process used to identify ATM cells that are addressed to the receiver, and is not "programmable pattern matching." Furthermore, the Examiner relies on the programmable CRC engine 38 as being the "programmable pattern matching engine" of claim 1, 2, 4-6, 11-17, 24, and 25. Is the CRC engine 38 a programmable pattern matching engine, or is it a CRC engine? *Johnston* fails to
 35 explicitly disclose each of the elements of claim 18, and thus fails to provide a basis for the rejection of claim 18 under 35 U.S.C. 102(b).

Claims 19 through 22 each include limitations that would only be present in a reference that at least discloses a cable modem, and which are not present in *Johnston*, which only discloses an ISDN interface. For example, an ISDN interface would not include a media access controller,
 40 security ID filtering in a Multimedia Cable Network System, a cable modem DMA controller, or other elements that would be present in a cable modem but which are completely lacking in the ISDN interface of *Johnston*. Withdrawal of the rejection of claims 18 through 23 is requested.

Rejections under 35 U.S.C. 103(a)

45 Claims 1, 2, 4-6, 11-17, 24, and 25 were rejected under 35 U.S.C. 103(a) as being
 anticipated by *Scherer* in view of *Johnston*. *Scherer* in view of *Johnston* fails to provide a basis
 for the rejection of claims 1, 2, 4-6, and 11-17, 24 and 25 under 35 U.S.C. 103(a), as they fail to
 disclose each element of the claimed invention, and further because there is no motivation for
 combining these two references. For example, claim 1 includes "a first interface for receiving
 50 data from a cable media; a pattern matching engine that evaluates patterns in the data that is
 received at the first interface of the cable modem and that enables the determination of appropriate
 procedures for treatment of the data; and wherein the pattern matching engine is a programmable
 pattern matching engine that may be programmed according to patterns that are desired to be
 matched during various operations of the cable modem" The cited sections of *Scherer* disclose
 55 only a CRC checking process, which is not programmable, and which does not match "patterns
 that are desired to be matched during various operations of the cable modem." As disclosed in
Scherer at col. 6, lines 11-29, CRC checking comprises calculating a CRC value from a
 mathematical calculation at a sending device, and performing a similar verification at the receiving
 device to determine if the value calculated at the receiving device matches the value calculated at
 60 the sending device. If the values do not match, then the frame is discarded and retransmission of
 the frame is requested.

In contrast, the invention of claim 1 includes a pattern matching engine "that may be
 programmed according to patterns that are desired to be matched during various operations of the
 cable modem." CRC is not programmable at the receiving end, as if it were, then it would not be
 65 capable of matching the mathematical calculation performed by the sending end. *Scherer* fails to
 provide a basis for the rejection of claim 1 under 35 U.S.C. 103, because it discloses that CRC

checking is sufficient to determine whether the received data is acceptable or needs to be retransmitted, and fails to teach or suggest a pattern matching engine "that may be programmed according to patterns that are desired to be matched during various operations of the cable modem."

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Johnston fails to remedy the failure of *Sherer* to disclose a pattern matching engine "that may be programmed according to patterns that are desired to be matched during various operations of the cable modem." The sections of *Johnston* cited by the Examiner merely disclose that the ISDN network interface includes a "CRC machine 38 that could be dedicated or

75 programmable so that a variety of CRC polynomials can be programmed." *Johnston* fails to disclose anything other than an ISDN interface, which is unrelated to a cable modem in that it fails to disclose the various operations of a cable modem. For example, claim 16 includes that these various operations can include "one or more of logical link control (LLC) filtering, protocol identifier (PID) filtering, and security ID (SID) filtering in a Multimedia Cable Network System

80 (MCNS)." *Scherer* not only fails to disclose security ID filtering, thus failing to disclose this element of claim 16, but the cited section of *Sherer* discloses that HDLC flag section 802, 804, and 806 and Packet PDU section 803 and 805 can detect HDLC format data and an Ethernet/[ISO8802-3] type packet PDU comprising 18 to 1518 bytes, respectively. Thus, there is no motivation in *Sherer* for a pattern matching engine "that may be programmed according to

85 patterns that are desired to be matched during various operations of the cable modem," because *Sherer* is able to detect patterns such as HDLC format data and packet PDU without a pattern matching engine. One of ordinary skill in the art would have no motivation to modify *Sherer* provide a pattern matching engine "that may be programmed according to patterns that are desired

to be matched during various operations of the cable modem," because *Sherer* provides alternative
 90 functionality for detecting patterns that may need to be matched during various operations of the
 cable modem.

Applicants further note that neither LLC filtering, PID filtering, nor SID filtering have
 anything at all to do with the programmable CRC functionality of *Johnston* – there would be no
 need to change the CRC polynomials in order to change from performing one of LLC filtering,
 95 PID filtering, or SID to any other of LLC filtering, PID filtering, or SID. The failure of *Sherer*
 in view of *Johnston* to provide a prima facie basis for the rejection of claims 1 and 16 lies in part
 with the assumption by the examiner that a CRC checker is equivalent to a pattern matching
 engine "that may be programmed according to patterns that are desired to be matched during
 various operations of the cable modem." While a CRC checker may perform a type of pattern
 100 matching, and while a CRC checker may be programmable to accept a variety of CRC polynomials,
 the reason why CRC checking is performed is entirely unrelated to the reason for providing a
 pattern matching engine "that may be programmed according to patterns that are desired to be
 matched during various operations of the cable modem." Even if the teachings of the present
 application are impermissibly used as a blueprint to combine the prior art so as to yield the
 105 claimed invention, *Sherer* in view of *Johnson* fail to disclose each element of claims 1 and 16, and
 thus fail to provide a prima facie basis for the rejection of these claims.

Claim 2 includes the cable modem of claim 1 wherein the pattern matching engine is
 configured to match address segments of the data that is received at the first interface of the cable
 modem. As recognized in *Johnston* at col. 1, lines 31-53, the ISDN layer is the ATM adaptation
 110 layer, and in Figure 2B, it can be seen that the 10 bit CRC comes at the end of the 48 octet ATM

cell body - thus, CRC checking is performed on the entire received ATM cell body, and not on the address segments. This section of *Johnston* exemplifies the problems with equating CR with the pattern matching engine. Since *Sherer* allegedly discloses the functionality of this element with a non-programmable CRC checker, there is no motivation to combine *Sherer* and *Johnston*.

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Claim 4 includes the cable modem of claim 1 wherein the pattern matching engine enables determination of whether to accept a frame at the cable modem quicker than if the cable modem were required to wait on processing at a central microprocessor. Again, *Johnston* only refers to performing CRC checking on entire ATM cells, and not to enable determination of whether to
120 accept a frame at the cable modem. Since *Sherer* allegedly discloses the functionality of this element with a non-programmable CRC checker, there is no motivation to combine *Sherer* and *Johnston*.

Claim 5 includes the cable modem of claim 1 wherein the pattern matching engine enables pattern matching of various length frame portions, and claim 6 includes the cable modem of claim
125 5 wherein the various length frame portions are selected from the group consisting of bit length, byte length, word length, double word length, kilobyte length, and megabyte length. Although the Examiner acknowledges that *Sherer* fails to disclose pattern matching of various length frame portions, it is alleged that *Johnston* discloses this at col. 6, lines 10-41. As previously discussed, *Johnston* discloses CRC that is performed on a fixed-length ATM cell, not various length frame
130 portions, and *Johnston* entirely fails to disclose that the various length frame portions are selected from the group consisting of bit length, byte length, word length, double word length, kilobyte length, and megabyte length, again failing to provide a prima facie basis for the rejection of the

claims due to the failure to disclose each element of the claimed invention.

135 Claim 15 includes the cable modem of claim 1 wherein the patterns in the data comprise one or more of a MAC address, an IP address, and a protocol identifier (PID) of an MPEG frame.

Although the first cited section of *Sherer* (col. 7, lines 36-67) refers to performing CRC on a MAC frame that includes frame addressing information, it further states that "CRC calculator 413 determines the correct CRC value based upon the information included in the MAC frame." As the CRC data is included at the end of the frame (ref. Figures 5A through 5C of *Sherer*), this is not patterns in the MAC address, but rather patterns in the entire frame. Likewise, the second section (col. 9, line 54 to col. 10, line 22) totally fails to refer to performing CRC on an IP address or a protocol identifier (PID) of an MPEG frame, as alleged.

140 Claim 17 includes the cable modem system of claim 1 further comprising a DES/CRC engine performing DES decryption or CRC processing of a received data frame after a microprocessor receives data from the pattern matching engine and determines to accept a received frame based on the data received from the pattern matching engine. The Examiner cites to *Johnston* at col. 5, lines 56-66 and col. 6, lines 25-41, stating that it discloses performing "CRC processing of a received data frame if MicU-28 determines to continue receipt of data stream." However, this confuses the MicU-28 with the CRC machine 38, which is allegedly the pattern matching engine. The cited sections only refer to MicU-28 performing a specific handshaking protocol - is the handshaking protocol now being alleged to be the pattern matching? In any event, the cited sections merely highlight the failure of *Sherer* in view of *Johnston* to provide a prima facie basis for the rejection of the claimed invention - DES decryption or CRC processing of a received data frame is performed after a microprocessor receives data from the pattern

matching engine and determines to accept a received frame based on the data received from the pattern matching engine, and this is simply not disclosed in the cited sections of *Sherer* and *Johnston*, nor anywhere else in those references.

Claim 11 includes a "method for a communication device to compare a predetermined pattern to a pattern that corresponds to a portion of a data frame, the method comprising: determining acceptable parameters for the data frames that are to be received at the communication device; programming the acceptable parameters into a pattern matching engine in the communication device; receiving data at the communication device; parsing the data to obtain a predetermined portion of the data; and comparing the predetermined portion of the data with the acceptable parameters stored in the pattern matching engine." Unlike CRC checking, which requires the entire data frame to be received before it can be performed, claim 11 compares predetermined portions of the data with the acceptable parameters stored in the pattern matching engine as it is received, thus allowing a determination to be made on whether to continue receiving the data frame. Furthermore, CRC checking does not include "comparing the predetermined portion of the data with the acceptable parameters stored in the pattern matching engine," as the CRC process performs a mathematical calculation on an entire received data frame and then compares CRC data transmitted from the sending system to the CRC data generated by processing the received data frame. Thus, there are no "acceptable parameters stored in the pattern matching engine" that are compared with a "predetermined portion of the data," as nothing is stored using the CRC process that is compared to data that is received – the only comparison that is performed using the CRC process is between a value that is calculated at the receiving end after processing an entire data frame with a value that is received from the sending

end that is based on the entire data frame.”

Scherer in view of *Johnston* fails to provide basis for the rejection of claim 11 under 35 103(a), because *Scherer* discloses that CRC checking is sufficient to determine whether the received data is acceptable or needs to be retransmitted, and fails to teach or suggest “determining acceptable parameters for data frames that are to be received at the communication device; programming the acceptable parameters into a pattern matching engine in the communication device; receiving data at the communication device; parsing the data to obtain a predetermined portion of the data; and comparing the predetermined portion of the data with the acceptable parameters stored in the pattern matching engine,” to compare a predetermined pattern to a pattern that corresponds to a portion of the data frame. There is no motivation to combine *Scherer* with *Johnston*, and even if there was, the cited sections of *Johnston* are not related – the programmable CRC checker (fig. 3, col. 5, lines 56-65 and col. 6, lines 25-41) does not generate output that is provided to register pads 34 for fast decisionmaking by the microinstruction unit 28 (col. 5, line 56 – col. 6, line 41). The register pads are only used to store AAL overhead, (*Scherer*, col. 5, lines 65-67), and the CRC machines 38 operate independently of the microinstruction unit 28.

Claim 12 includes the method of claim 11 further comprising registering the result of the comparison in a suitable format for access by a microprocessor. Claim 13 includes the method of claim 12 further comprising reading the registered results with a microprocessor such that the microprocessor may determine whether to drop or accept the data frame that has been received at the communication device. Claim 14 includes the method of claim 12 wherein the predetermined portion of the data frame is an address portion of the data frame. Claim 24 includes the method of claim 11 wherein programming the acceptable parameters into the pattern matching engine in the

communication device comprises programming one or more of a MAC address, an IP address, and a protocol identifier (PID) of an MPEG frame. Claim 25 includes the method of claim 11 wherein programming the acceptable parameters into the pattern matching engine in the communication device comprises programming one or more parameters used to perform LLC filtering, PID filtering, and SID filtering in a Multimedia Cable Network System (MCNS). Although the Examiner alleges that these claims are met for reasons previously discussed, the Applicants believe that the Examiner's characterization of the references is flawed, for the reasons previously discussed, and fails to provide a prima facie basis for the rejection of these claims. Withdrawal of the rejection and allowance of the claims is requested.

CONCLUSION

In view of the foregoing remarks and for various other reasons readily apparent, Applicants submit that all of the claims now present are allowable, and withdrawal of the rejections and a Notice of Allowance are courteously solicited.

If any impediment to the allowance of the claims remains after consideration of this amendment, a telephone interview with the undersigned at (214) 969-4669 is hereby requested so that such impediments may be resolved as expeditiously as possible.

No fee is believed to be due with this response. If any applicable fee or refund has been overlooked, the Commissioner is hereby authorized to charge any fee or credit any refund to the deposit account of Akin, Gump, Strauss, Hauer & Feld, L.L.P., No. 01-0657.

Respectfully Submitted,



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